

IN THE CLAIMS:

The following is a complete listing of claims in this application.

Claims 1-3 (canceled).

4. (currently amended) A system for data transmission over an optical network, the system comprising:

at least one service collection unit including

a collection module for collecting services data in original protocols thereof from a plurality of services ~~data~~ to be transmitted,

said services comprising at least TDM, ATM, Fibre Channel, Ethernet, PDH and Frame Relay;

a processing module for processing ~~the~~ services data from at least two said services in their original protocols into a packet ~~packets~~; and

a packet transmission module for converting the ~~packets~~ packet into optical signals on an optical fiber for transmission into a metro network; and

an aggregator, coupled for upstream and downstream optical communication to a plurality of said service collection units, and including:

a sorting module for sorting the services data from a plurality of packets received from said metro network, according to service type; and

a service aggregation module for combining like services data for transmission over ~~an appropriate service~~ a network associated with the service type;

wherein said service collection unit comprises:

at least one service interface;

a packetization module for receiving services data from said interface and inserting the services data into packets;

a tagging module for tagging said packets; and

a packet switch, coupled between said tagging module and a trunk, for switching said packets to at least one service collection unit's optical transceiver.

5. (previously presented) The system according to claim 4, wherein the service collection unit's optical transceiver includes at least one wavelength specific laser, and further includes a wavelength division multiplexer/demultiplexer (WDM) for multiplexing/demultiplexing the number of optical transceivers with different optical signals having different wavelengths onto/from a single optical fiber.

6. (previously presented) The system according to claim 4, wherein said tagging module is a Multi-Protocol Label Switching (MPLS) tagging module for adding a tag based on MPLS to each of said packets.

7. (previously presented) The system according to claim 4, further comprising a module in said trunk for encapsulating said tagged packets into Point-to-Point Protocol (PPP) packets.

8. (original) The system according to claim 7, wherein said service collection unit further comprises a stream switch, coupled between the packet switch and the service collection unit's optical transceivers, for switching PPP packets between optical transceivers.

9. (original) The system according to claim 7, wherein said PPP packets are arranged in an HDLC-like frame.

10. (original) The system according to claim 4, wherein said service collection unit further comprises at least one transmission framer per stream for mapping said tagged packets onto transmission frames, coupled between the packet switch and the service collection unit's optical transceivers.

11. (original) The system according to claim 10, wherein said transmission framers are Packet over SONET/SDH (PoS)

framers.

12. (previously presented) The system according to claim 10, wherein said service collection unit further comprises a stream switch, coupled between said transmission framers and said optical transceivers for switching transmission frames between said optical transceivers.

Claim 13 (canceled).

14. (currently amended) The system according to claim 12, wherein said aggregator, in an upstream mode, includes:

an aggregator optical transceiver,

a packet switch serving as a sorting module, for directing packets from a trunk, received in said aggregator optical transceiver, according to destination;

a tagging module for removing a tag from said packets;
and

said service aggregation module for aggregating like services data, said service aggregation module being coupled to ~~an appropriate~~ a network associated with said service using a designated protocol.

15. (original) The system according to claim 14, further comprising:

a framing module, coupled between said aggregator's optical transceiver and said packet switch, for removing packets from a transmission frame.

16. (previously presented) The system according to claim 14, wherein the service collection unit's optical transceiver includes at least one wavelength specific laser, and further includes a wavelength division multiplexer/demultiplexer (WDM) for multiplexing/demultiplexing the number of optical transceivers with different optical signals having different wavelengths onto/from a single optical fiber.

17. (original) The system according to claim 14, wherein

said aggregator's tagging module is a Multi-Protocol Label Switching (MPLS) tagging module for adding a tag based on MPLS to each of said packets.

18. (currently amended) A system for data transmission over an optical network, the system comprising:

at least one service collection unit including

a collection module for collecting services data in original protocols thereof from a plurality of services data to be transmitted,

said services comprising at least TDM, ATM, Fibre Channel, Ethernet, PDH and Frame Relay;

a processing module for processing ~~the~~ services data of at least two said services in their original protocols into a packet ~~packets~~; and

a packet transmission module for converting the packets into optical signals on an optical fiber for transmission into a metro network; and

an aggregator, coupled for upstream and downstream optical communication to a plurality of said service collection units, and including:

a sorting module for sorting the services data in original protocols thereof from a plurality of packets received from said metro network, according to service type; and

a service aggregation module for combining like services data for transmission over ~~an appropriate service a~~ network associated with the service type;

wherein said aggregator, in a downstream mode, includes:

an aggregator's optical transceiver for receiving aggregated services data in their original protocols;

the sorting module for de-multiplexing said received services data;

a packet processing module for processing the services data into packets in a frame, tagging, sorting and multiplexing according to destination; and

said service collection unit, in a downstream mode, includes:

a service collection unit's optical transceiver coupled for downstream optical communication to said aggregator's optical transceiver;

a de-packing module for de-packing the frames so as to retrieve a plurality of service packets;

said processing module for removing original services data from said packets; and

a transmission module for transmitting services data according to destination.

19. (original) The system according to claim 18, wherein said packet processing module further comprises a transmission framer for inserting processed packets into transmission frames; and

said transmission module is arranged to load said transmission frames onto an optical fiber.

20. (new) A system for data transmission over an optical network, the system comprising:

at least one service collection unit including

a collection module for collecting services data in original protocols thereof from a plurality of different types of services to be transmitted;

said services comprising at least TDM, ATM, Fibre Channel, Ethernet, PDH and Frame-Relay;

a processing module for processing services data of at least two services from said plurality of services in their original protocols into a packet; and

a packet transmission module for converting the

packet into optical signals on an optical fiber for transmission into a metro network; and

an aggregator, coupled to a plurality of said service collection units for upstream and downstream optical communication, and including:

a sorting module for sorting the services in their original protocols from a plurality of packets according to service type; and

a service aggregation module for combining like services for transmission over a network associated with the service type.